

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (withdrawn) A method for generating a nucleic acid molecule with precise user control, the method comprising:

- a) providing a plurality of nucleic acids immobilized on a surface;
- b) providing a nucleic acid molecule attached to a protecting group;
- c) contacting said immobilized nucleic acid molecule with said nucleic acid molecule attached to a protecting group;
- d) elongating said immobilized nucleic acid molecule; and
- e) dissociating said immobilized nucleic acid molecule from said protecting group thereby extending said immobilized nucleic acid molecule.

2. (withdrawn) The method of Claim 1, wherein said protecting group comprises proteins, carbohydrates; diphosphates, phosphate derivatives, nucleotides, oligonucleotides, or combinations thereof.

3. (withdrawn) The method of Claim 1, wherein the removal of said protecting group is accomplished by the application of heat, proteases, phosphatases, restriction enzymes, or combinations thereof.

4. (currently amended) A method for removing or controlling errors in nucleic acid molecules comprising arbitrary user-specified sequence composition and length, the method comprising:

- a) providing a solid support for synthesis of nucleic acid;
- b) synthesizing nucleic acid attached to the solid support;
- c) passing the solid support and newly synthesized nucleic acid through a channel opening;

d) detecting errors in the sequence of the newly synthesized nucleic acid synthesis; and

e) correcting errors in the sequence of the newly synthesized nucleic acid synthesis.

5. (currently amended) A method for removing or controlling errors in nucleic acid molecules comprising arbitrary user-specified sequence composition and length, the method comprising:

a) synthesizing nucleic acids with 5' protecting groups;

b) monitoring the deprotection of the 5' protecting group;

c) based on results from the step of monitoring, detecting errors in the sequence of the newly synthesized nucleic acid synthesis; and

d) correcting errors in the sequence of the newly synthesized nucleic acid synthesis.

6. (withdrawn) A method for detecting the addition of nucleotides to nucleic acid molecules comprising:

a) providing a solid support for the attachment of a nucleic acid;

b) elongating said attached nucleic acid;

c) detecting the force exerted on the growing nucleic acid molecule;

d) detecting errors in nucleic acid synthesis; and

e) correcting errors in nucleic acid synthesis.

7. (withdrawn) A method for removing or controlling errors in nucleic acid molecules comprising arbitrary user-specified sequence composition and length, the method comprising the parallelization of single-molecule systems with and without arrays of light sources and detectors.

8. (withdrawn) A method for the microfabrication of quadrupole arrays, the method comprising:

a) defining bond pads and lithographically defining and depositing a layer of diagonal metal wires on a silicon substrate;

b) lithographically designing and depositing a film of soft magnetic material over a portion of the metal lines; and

c) lithographically defining and depositing a second layer of metal lines over the magnetic film layer.

9. (withdrawn) A method for independently controlling particles, the method comprising controlling said particles via an electric field, a magnetic field, optical tweezers, or any combinations thereof.

10. (withdrawn) A method for synthesizing polymers in which individual molecules are monitored during synthesis to observe and evaluate the reaction products.

11. (currently amended) The method of claim 5, the step of monitoring the deprotection of the 5' protecting group further comprising:

deprotecting the synthesized nucleic acid using a deprotection wash;

flowing the deprotection wash through ~~employing~~ a channel opening; and

detecting the presence or absence of at least one 5' protecting group in the wash.

12. (currently amended) The method of claim ~~4~~ 5, further comprising the step of detecting ~~the a~~ change in electrophoretic force exerted by ~~on the newly synthesized growing~~ nucleic acid as it grows ~~molecule~~.

13. (previously presented) The method of claim 5, wherein a plurality of reactions are carried out in parallel using a plurality of light sources and detectors.

14. (new claim) The method of claim 4, wherein the synthesized nucleic acid has at least one 5' protecting group and further comprising the steps of:

monitoring the deprotection of the 5' protecting group; and

based on results from the step of monitoring, detecting errors in the sequence of the newly synthesized nucleic acid.

15. (new claim) The method of claim 14, further comprising the step of detecting a change in electrophoretic force exerted by the newly synthesized nucleic acid as it grows.

16. (new claim) The method of claim 4, wherein a plurality of reactions are carried out in parallel using a plurality of light sources and detectors.

17. (new claim) The method of claim 4, wherein the errors in the sequence of the newly synthesized nucleic acid are selected from the group consisting of insertion errors, deletion errors, and wrong base incorporation errors.

18. (new claim) The method of claim 5, wherein the errors in the sequence of the newly synthesized nucleic acid are selected from the group consisting of insertion errors, deletion errors, and wrong base incorporation errors.